UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
CHANG, EDITH M

ART UNIT	PAPER NUMBER
2637	

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	**Applicant(s)**
Office Action Summary	09/726,978	WARDROP ET AL.
	Examiner	**Art Unit**	
	Edith M. Chang	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _14 March 2005_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-22_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-22_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _14 March 2005_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments/Remarks

1.   Applicant's arguments filed on March 14, 2005, have been fully considered but

they are not persuasive.

<u>Drawings</u>

Argument: in FIG.2A, 1400 the computer may be configured to "calculate a

frequency error produced by said mixer".

Response: In FIG.2A, the computer 1400 only receives signal/information from

the oscillator 1600, the first and second frequency monitors (1100 & 1300) which in turn

receive signals/information from GPS receiver 1500 and the first (1000) or second

oscillator (1200). How does the computer calculate a frequency error produced by said

mixer with only information provided by oscillators and GPS receiver? The disclosure of

the drawing does not show the claimed features "a computer adapted to calculate a

frequency error produced by the mixer of the downconverter.

Argument: in FIG.3A, 1400 the computer may be configured to "calculate a

frequency error produced by the upconverter".

Response: In FIG.3A, the computer 1400 only receives signal/information from

the oscillator 1600, the first and second frequency monitors (5100 & 530) which in turn

receive signals/information from GPS receiver 1500 and the first (5200) or second

oscillator (5000). How does the computer calculate a frequency error produced by the

upconverter (700) with only information provided by oscillators and GPS receiver? The

disclosure of the drawing does not show the claimed features "a computer adapted to calculate a frequency error produced by the upconverter.

Drawings

2.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, *the computer adapted to calculate a frequency error produced by the mixer of a downconverter* and *the computer adapted to calculate a frequency error produced by the upconverter* must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next

Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3.   The numbering of claims is not in accordance with 37 CFR 1.126 which requires

the original numbering of the claims to be preserved throughout the prosecution. When

claims are canceled, the remaining claims must not be renumbered. When new claims

are presented, they must be numbered consecutively beginning with the number next

following the highest numbered claims previously presented (whether entered or not).

Misnumbered dependent claims 17 to 21 have been renumbered as Claims 18 to

22.

4.   Claims 18 to 22 are objected to because of the following informalities:

Claims 18 to 22, line 1: "The apparatus of claim 16" should be "The apparatus of

claim 17".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

6.   Claims 1-16 and 18 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention.

In claim 1 & claim 12, there is in no connection between the composed elements, the downconverter, the analog-to-digital converter, the digital receiver, and the digital demodulator to clearly indicate how does the computer calculate a frequency error produced by the mixer, while the computer receives only the signals from the oscillators, for digitally compensating the reception of radio frequency signals.

In claim 2 & claim 17, there is in no connection between the composed elements: the digital modulator, the digital-to-analog converter, and the upconverter to clearly indicate how does the computer calculate a frequency error produced by the mixer, while the computer receives only the signals from the oscillators, for digitally compensating the reception of radio frequency signals.

Claim 12, lines 1-2: "the reception of radio frequency signals" lacks antecedent basis.

Claim 18, line 2: "the downconverter" lacks antecedent basis.

Claims 3-6, 7-11, 13-16 are dependent on the rejected claims 1, 2 and 12.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Philips et al. (US 6,307,877 B1) in view of Phillips et al. (US 5,867,535) and Dunlop et

al. (US 5,528,199).

Regarding **claims 1 & 2**, In FIG.1, Philips et al. discloses a programmable

mobile modem comprising: a *modulation 203* (as *the up converter*) converting the IF

signal from the D/A 209 to RF signal (column 13, lines 62-64 & lines 65-66); a

demodulation 205 (*as the down converter*) converting the received RF signal to the A/D

207 to IF signal (column 13, lines 63-64 & line 65), wherein the up/down converter

performs converting the IF signal to/from RF signal by *a mixer* (as suggested/shown in

FIG.2 UPCONV. 210 and DOWNCONV. 212) and receive clock signals from the

reference clock (*oscillator*) 213 (column 13 line 66-column 14 line 1); *A/D converter 207*

and D/A converter 209; a PMCM DSIC 202 inputting and outputting IF signals to and

from the A/D 207 and D/A 209 as shown in FIG.2, the receiver subsystem 211 (as the

digital receiver) with the *NCO 232* or the transmitter subsystem 1000 (as the *digital*

transmitter) with the *NCO 230* with CORCI algorithm executed/set by the DSP

processor show in FIG.3 (column 14, lines 17-20); and receive a clock signal from the

reference clock 213 (column 14, lines 1-2); and a DSP processor 204 (*a computer*)

receiving the signals from the clock gen. subsystem 214 (FIG.2) and executing *the error*

correction functionality (column 5, lines 43-47).

However, Philips et al. does not specify the frequency monitor and the A/D driven

by a different oscillator frequency (a second oscillator).

With respect to the frequency monitor, in FIG.1, Dunlop et al. teaches a circuit to

establish and maintain the output frequency of an oscillator (column 1 lines 15-18). As

the reference clock providing the clock frequency signals or frequency synthesizers

providing the frequency signals in Philips et al.'s system, at the time of the invention

was made, it would have been obvious for one of ordinary skill in the art to have the

circuit (frequency monitor) adapted to measure the frequency of the oscillator taught by

Dunlop et al. in the Philips et al.'s reference clock and frequency synthesizers to have a

low-power-dissipation circuit for automatically establishing and maintaining the output

frequency at a prescribed value (column 1 lines 15-23).

With respect to the A/D driven by a different oscillator frequency (a second

oscillator), Phillips et al. teaches an oscillator 120MHz (with the *frequency monitor*)

reference to the A/D converter and an oscillator 40MHz (with the *frequency monitor*) to

the digital processing portion. As Philips et al. suggests four synthesizers: sampling and

carrier frequency synthesizers (column 15, lines 40-44 '877). The sampling synthesizer

214b and 214b (the *second oscillator*) generate the adjustable over-sampling clocks,

while the carrier frequency synthesizers (the *first oscillator*) generate carrier waveforms

at an IF (column 15, line 44-48 '877), at the time of the invention was made, it would

have been obvious to have the sampling synthesizer applied to the PMCM (the digital

processing portion) and the carrier frequency synthesizer applied to the A/D converter

portion taught by Phillips et al. ('535) to have a flexible synthesizers to save space and

power of the system (column 15, lines 41-43 '877) .

Regarding **claims 3 & 7**, In FIG.6, Philips et al. discloses an antenna 528

coupled to the down converter 530; and an antenna 526 coupled to the up converter

524.

Regarding **claims 4 & 5**, In FIG.5, Philips et al. discloses the downconverter and

the receiver are configured to provide and select a plurality of radio channels a and b

(column 2, lines 62-67).

Regarding **claims 6 & 11**, in FIG.2, Philips et al. discloses that the spreading and

correlating PN code of the RF signal supporting GPS code (column 14 line 66-column

15 line 2), hence the RF signals of Philips et al. system are GPS signals.

Regarding **claim 8,** in Fig.3, Philips et al. discloses the NCO 320 or 232 of FIG.2

configured to receive the signal from the processor ARM6 (as the computer) via ARM

interface 314 to convert the IF signal to correlation & noise estimation or to D/A for

transmission.

Regarding **claims 9 & 10,** in Fig.2, Philips et al. discloses the transmitter

subsystem 1000 (the digital transmitter) outputting a digital IF at D/A IF SIGNAL to the

D/A to convert to an analog signal provided to the subcarrier modulation 203 (the

upconverter) for converting the analog signal to RF signal at TO RF PART (column 13,

lines 65-66), wherein the modulator 203 provides a RF signal.

9.   Claims 12-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Philips et al. (US 6,307,877 B1) in view of Dunlop et al. (US 5,528,199).

Regarding **claims 12 & 17**, In FIG.1, Philips et al. discloses a programmable

mobile modem comprising: a reference clock 213 (the oscillator) providing the clock

signals; a *modulation 203* (as *the up converter)* converting the IF signal from the D/A

209 to RF signal (column 13, lines 62-64 & lines 65-66); a demodulation 205 (*as the*

down converter) converting the received RF signal to the A/D 207 to IF signal (column

13, lines 63-64 & line 65), wherein the up/down converter performs the IF signal to/from

RF signal by *a mixer* (as taught in FIG.2 UPCONV. 210 and DOWNCONV. 212) and

receive clock signals from the reference clock 213 (column 13 line 66-column 14 line 1);

A/D converter 207 and D/A converter 209; a PMCM DSIC 202 inputting and outputting

IF signals to and from the A/D 207 and D/A 209 as shown in FIG.2, the receiver

subsystem 211 (as the *digital receiver)* with the *NCO 232* or the transmitter subsystem

1000 (as the *digital transmitter)* with the *NCO 230* with CORCI algorithm executed/set

by the DSP processor show in FIG.3 (column 14, lines 17-20), and receive clock signals

from the reference clock 213 (column 13 line 66-column 14 line 2); and a DSP

processor 204 (*a computer)* receiving the signals from the clock gen. subsystem 214

(FIG.2) and executing *the error correction* functionality (column 5, lines 43-47).

However, Philips et al. does not specify the frequency monitor. In FIG.1, Dunlop

et al. teaches a circuit to establish and maintain the output frequency of an oscillator

(column 1 lines 15-18). As the reference clock providing the clock frequency signals or

frequency synthesizers providing the frequency signals in Philips et al.'s system, at the

time of the invention was made, it would have been obvious for one of ordinary skill in

the art to have the circuit (frequency monitor) adapted to measure the frequency of the

oscillator taught by Dunlop et al. in the Philips et al.'s reference clock and frequency

synthesizers to have a low-power-dissipation circuit for automatically establishing and

maintaining the output frequency at a prescribed value (column 1 lines 15-23).

Regarding **claims 13 & 18**, In FIG.6, Philips et al. discloses an antenna 528

coupled to the down converter 530; and an antenna 526 coupled to the up converter

524.

Regarding **claims 14 & 15**, In FIG.5, Philips et al. discloses the downconverter

and the receiver are configured to provide and select a plurality of radio channels a and

b (column 2, lines 62-67).

Regarding **claims 16 & 22**, in FIG.2, Philips et al. discloses that the spreading

and correlating PN code of the RF signal supporting GPS code (column 14 line 66-

column 15 line 2), hence the RF signals of Philips et al. system are GPS signals.

Regarding **claim 19,** in Fig.3, Philips et al. discloses the NCO 320 or 232 of

FIG.2 configured to receive the signal from the processor ARM6 (as the computer) via

ARM interface 314 to convert the IF signal to correlation & noise estimation or to D/A for

transmission.

Regarding **claims 20 & 21**, in Fig.2, Philips et al. discloses the transmitter

subsystem 1000 (the digital transmitter) outputting a digital IF at D/A IF SIGNAL to the

D/A to convert to an analog signal provided to the subcarrier modulation 203 (the

upconverter) for converting the analog signal to RF signal at TO RF PART (column 13,

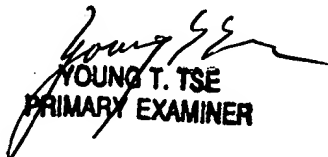lines 65-66), wherein the modulator 203 provides a RF signal.

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay K. Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
September 12, 2005

YOUNG T. TSE
PRIMARY EXAMINER